SAS Journal of Medicine
Abbreviated Key Title: SAS J Med
ISSN 2454-5112
Journal homepage: https://saspublishers.com

OPEN ACCESS

Pediatrics A

Reversible Posterior Encephalopathy Syndrome Secondary to Post-Streptococcal Acute Glomerulonephritis in a Child: About an Unusual Case Report and Review of Literature

Oumou Maïga[1*], Marwa El Massi[1], Moussa Coulibaly[2], Soumia Mghar[1], Karima El Fakiri[1], Nouredine Rada[1], Ghizlane Draiss[1], Dounia Basraoui[2], Mohamed Bouskraoui[1]

[1]Department of Pediatrics A. Child Mother Hospital, CHU Mohammed VI, Marrakech, Morocco
[2]Radiology Department, AR RAZI Hospital, Mohamed VI University Hospital, Marrakesh, Morocco

DOI: 10.36347/sasjm.2023.v09i05.007 | **Received:** 12.03.2023 | **Accepted:** 28.04.2023 | **Published:** 06.05.2023

***Corresponding author:** Maïga Oumou
Department of Pediatrics A. Child Mother Hospital, CHU Mohammed VI, Marrakech, Morocco

Abstract **Case Report**

Reversible posterior encephalopathy (PRES) is a clinico-radiological syndrome, which manifests as headaches, confusion, visual disturbances, convulsive seizures and radiological abnormalities of the white substance suggesting oedema of the posterior parieto occipital brain regions. It is a poorly known and very rare disease in children. In a 10-year-old boy with an untreated 15-day history of angina, he presents for headaches, associated with vomiting, or even photophobia-type visual disorders and earache-type otalgia and phonophobia, a disorder of conscience of more than 24 hours without the notion of convulsions and a hematuria in broth dirty. All associated with functional impotent of the lower limbs and meningeal syndrome. Cerebral MRI showed a signal abnormality in cortical subcortical range visible in bilateral parieto-occipital, T2 hypersignal and flair with discrete under cortical restriction of diffusion and not raised after injection. We are bringing a case of reversible posterior encephalopathy secondary to acute glomerulonephritis post-streptococcal associated with a meningeal syndrome that could likely be related to germless bacterial meningitis or meningeal hemorrhage. Early detection and prompt treatment are important measures to reduce morbidity and mortality.

Keywords: GNA, PRES, Child, Meningeal syndrome, brain MRI.

INTRODUCTION

Reversible posterior encephalopathy (PRES) is a clinico-radiological syndrome, which manifests as headaches, confusion, visual disturbances, convulsive seizures and radiological abnormalities of the white substance suggesting oedema of the posterior parieto occipital brain [1]. It is a poorly known and very rare disease in children. We report the case of a child hospitalized for acute post-infectious glomerulonephritis (GNA) associated with meningeal syndrome who developed PRES.

OBSERVATION

Patient aged 10 years with a history of angina untreated 15 days prior to hospitalization, he presents for diffuse headaches mainly in occipitals, constrictives, rebel to painkillers, associated with vomiting, or visual disturbances such as photophobia and ear damage such as otalgia and phonophobia. All in a context of fever at 39°C and alteration of the general condition (Asthenia, anorexia). The evolution was marked by a disorder of consciousness of more than 24 hours without notion of convulsions and a hematuria in dirty broth (Figure 1). Clinical examination found a patient obenubilated with a Glasgow 12/15 sign, febrile at 38°C, normo stretched at 100/60 mmHg, diuresis preserved with a positive urine strip (4+hematuria and 4+ proteinuria). On neurological examination, the patient had functional impotent of the lower limbs and a frank meningeal syndrome made of stiffness of the neck, the signs of kerning and brudzinski were positive without signs of HTIC. Blood tests (CBC, CRP, Ionogram, Glycemia) were normal. The analysis of the cerebrospinal fluid revealed (haematic appearance, leukocytes at 48/mm3 predominantly polynuclear neutrophil at 56%, hematies at 38 400/mm3, hyperproteinaemia at 0.77, hyperglucorachia at 1.01 mmol/l, sterile culture). The

GNA balance was positive (Hypocomplememia C3, and a 24-hour protein positive but not nephrotic) and normal kidney function. Biological assessment revealing anti-streptolysin O (ASLO) positive at 8 times normal (1600). Given the persistence of the disorders of consciousness, a brain MRI showed a signal abnormality in cortical subcortical visible in bilateral parieeto-occipital, in hyposignal T1, hypersignal T2 and flair with discrete under cortical restriction of diffusion and not increased after injection (Figure 2).

The probable diagnosis was a reversible posterior encephalopathy syndrome secondary to acute glomerulonephritis post-streptococcal probably associated with germless bacterial meningitis or meningeal hemorrhage retained before the clinical-biological arguments.

Treatment was ceftriaxone-based antibiotic therapy 100mg/kg/day and symptomatic with BP and BU monitoring. The evolution was marked by a gain of apyrexia with the disappearance of meningeal syndrome after 48 hours and the persistence of hematuria on a decline of 15 days. In addition, no peak blood pressure was noted.

Figure 1: Urine broth dirty

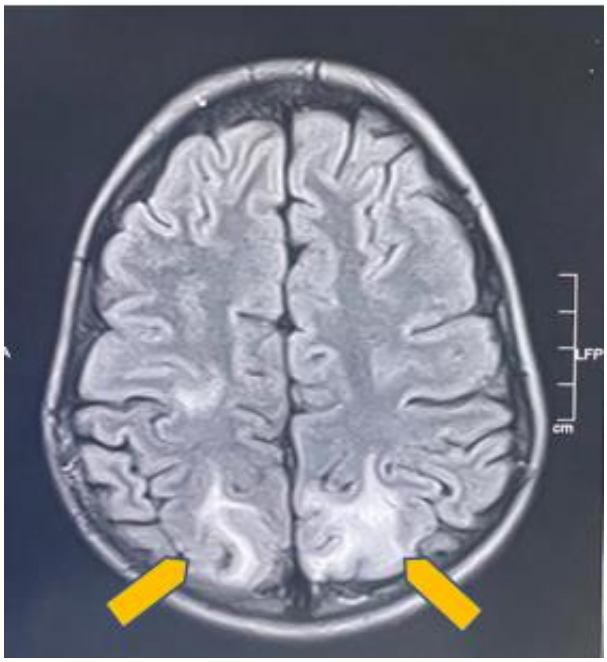

Figure 2: Cerebral MRI showing T2 hypersignal and flair related to bilateral parieto-occipital vasogenic edema evoking PRES (arrows)

DISCUSSION

Reversible posterior encephalopathy syndrome is a clinical radiographic syndrome of heterogeneous etiologies [2]. It was first characterized by Hinchey and his colleagues, who introduced the term reversible posterior leukoencephalopathy syndrome, although cases have been described previously, also called post-leukoencephalopathy syndrome [3]. Common etiologies of PRES include hypertension, systemic infections, organ transplants, autoimmune diseases (ALS), malignant tumours, chemotherapy and immunosuppression [4], our patient's case is angina and a probable meningeal infection that may be associated. PRES may be the main feature of post-infectious glomerulonephritis, which has been reported in about 5% of hospitalized children [5], this theory is equivalent to oropharyngeal infection which has become complicated into GNA in our patient. PRES is characterized by the association of headaches, vomiting, disorders of vigilance, visual disorders and focal neurological signs. Brain imaging highlights multifocal lesions predominant in the posterior region of the cerebral hemispheres, typically in the parieto-occipital region [6] which is consistent with the clinical-radiological signs of our patient associated with meningeal syndrome. On average, about 40% of all patients diagnosed with PRES require intensive care monitoring and treatment due to serious complications such as epileptic disease, cerebral ischemia, intracerebral hemorrhage or intracranial hypertension [7, 8]. Our patient had a disorder of consciousness of more than 24 hours with a meningeal syndrome that could be related to either meningo-post streptococcal encephalitis even though the CSF culture did not isolate any germs with very high ALSO or meningeal hemorrhage as a complication of PRES. The patient was placed on ceftriaxone 100 mg/kg/day with a high suspicion of meningoencephalitis before recovery of the CSF culture and then at the dose of 50 mg/kg/day after sterilization for 7 days. A clear clinical improvement at the end of the second day of hospitalization was observed before the gain of apyrexia and disappearance of the meningeal syndrome, return of normal urine after 15 days of recoil. Strict monitoring of the urine strip (BU) and blood pressure is necessary to prevent further complications.

CONCLUSION

PRES should be evoked in a child with acute post-streptococcal glomerulonephritis (NGP) presenting rapidly progressive neurological manifestations.

It can be associated with a number of complex clinical situations, including a neuromeningeal infection or complicated meningeal bleeding. Early detection and early treatment are important measures to reduce morbidity and mortality.

Patient's Point of View:

He and his parents were grateful for his rapid treatment and his recovery after 15 days.

Informed Consent: Orally without Documentation

This case has been presented with parental consent.

Conflict of Interest:

The authors have declared that they have no conflict of interest.

Authors' Contributions:

The pediatrics team contributed to the care and to participate in the writing, the correction of this article.

The radiology team for the interpretation and confirmation of the diagnosis.

REFERENCES

1. Berdai, A. M., & Harandou, M. (2012). A posterior reversible encephalopathy revealing post infectious glomerulonephritis. *Pan Afr Med J.*, *13*, 82.
2. Adikari, M., Priyangika, D., Marasingha, I., Thamotheram, S., & Premawansa, G. (2014). Post-streptococcal glomerulonephritis leading to posterior reversible encephalopathy syndrome: a case report. *BMC Res Notes*, *7*, 644.
3. Ghali, M. G. Z., Davanzo, J., Leo, M., & Rizk, E. (2019). Posterior reversible encephalopathy syndrome in pediatric patients: pathophysiology, diagnosis, and management. *Leukemia and Lymphoma*, *60*(10), 2365-72.
4. Ghimire, S., Shrestha, S. K., Bastola, R. C., Dahal, A., & Shakya, P. (2021). Posterior reversible encephalopathy syndrome in a child with post streptococcal glomerulonephritis- A case report. *JNMC*, *6*(1), 50-2.
5. Hanafy, E., Alshareef, D., Osman, S., Al Jabri, A., Nazim, F., & Mahmoud, G. (2018). Posterior reversible encephalopathy syndrome secondary to asymptomatic poststreptococcal glomerulonephritis in a child with sickle cell anemia: a case report. *J Med Case Rep.*, *12*(1), 24.
6. Sfaihi, L., Kamoun, F., Hentati, Y., Tiss, O., Maaloul, I., Kamoun, T., ... & Hachicha, M. (2013). Posterior reversible encephalopathy syndrome induced by acute postinfectious glomerulonephritis. *Archives de Pediatrie: Organe Officiel de la Societe Francaise de Pediatrie*, *20*(6), 633-636.
7. Mandal, D., Khanal, D., Phuyal, R., & Bhatta, A. (2020). Posterior Reversible Encephalopathy Syndrome in a Patient with Post Streptococcal Glomerulonephritis: A Case Report. *JNMA J Nepal Med Assoc.*, *58*(232), 1072-4.
8. Fischer, M., & Schmutzhard, E. (2017). Posterior reversible encephalopathy syndrome. *J Neurol.*, *264*(8), 1608-16.